

Report on an Ongoing Field Study of Pricing

as it Relates to Menu Costs

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This talk will summarize microeconomic information gathered in an interview study of pricing that I have been doing off and on for the last eight years. To be consistent with the title of this conference, I will emphasize the so-called menu costs of price change, where these are the costs associated with the price decision making process or with the administrative process of changing prices. Before taking up the impact of these costs, I describe briefly the method and scope of the study.

I collect information by interviewing company decision makers responsible for pricing. The interviews are obtained mostly through networking, that is, by using contacts obtained through friends and relatives or from the people interviewed. The objective in choosing respondents is to find knowledgeable people in as many industries as possible. Interviews usually last about 90 minutes. They are tape recorded and later transcribed. I give respondents a list of questions, usually well in advance of interviews, but do not insist that they stick to the list. The lists are tailored to each respondent, but I often find I am asking the wrong questions and sometimes learn most when the respondent speaks unprompted. So far, I have done 466 interviews.

The method has clear disadvantages; it is enormously time consuming, statistical methods cannot be applied meaningfully, and interviews can be difficult to obtain. Against these drawbacks must be weighed access to detailed information about the inner workings of companies and markets, exactly the information needed to address issues on pricing.

In undertaking this study, I was originally motivated by questions relevant to macroeconomics, such as is there resistance to price change and if so why, how are prices established, how do they depend on sunk costs and marginal costs, how do prices respond to changes in costs and demand, and how is output determined. After beginning the study, I soon realized that there is a huge variation in pricing methods and price flexibility. Although I am still seeking answers to the original questions, I now also focus on the microeconomic problems of describing the various pricing methods and understanding the circumstances that give rise to them. I will have time here to do little more than discuss the methods where the costs of price adjustment play a role.

I have found menu costs to be important only in the following types of businesses: restaurants, catalogue sales, supermarkets and department stores, and specialty stores selling seasonal goods. In

every other kind of business I visited, the costs of price adjustment were minimal or irrelevant. I will discuss pricing in each of the classes of business separately.

Before continuing, I note that my conclusions are all tentative. Almost half my interviews have not yet been transcribed and I have not systematically reviewed and organized the transcripts I have.

Restaurants

Menu costs in the literal sense are important to restaurant managers only if the menus are expensive to print, and I never heard that decision making costs are important in a restaurant business. Restaurants with menus that are cheap to reproduce typically change them often, though the prices on the regular items seldom change for reasons that will be explained momentarily. When menus are expensive to print, this cost does discourage change in the regular menu. Restaurants in this situation usually put specials on separate sheets that are cheap to copy and are inserted into the menu. The specials may change from day to day.

Whether menus are cheap or expensive to reproduce, restaurant managers are extremely reluctant to raise prices on regular, as opposed to special, items. The reason is a consideration that arises in almost all retailing. Regular customers are an important part of the clientele, and restaurant managers assume that such customers are bound by habit and will continue to return unless something disturbs them. A price increase on an item they normally order could provoke them into trying other restaurants, and after doing so they may end up changing their habits and never returning. This reasoning is made even in the fast food industry. Restaurants do raise prices, however, mostly out of necessity because of increases in the costs of ingredients. These views on price increases were no doubt exaggerated by the low level of inflation during the period of my interviews.

The upward rigidity of prices leads to downward rigidity; restaurant managers are reluctant to reduce prices because they believe it will be difficult to raise them back up later. The downward rigidity does not apply to promotional discounts, however. Some restaurants, like many retailers, try to attract customers by reducing prices on certain items temporarily and advertising the discounts. The temporary nature of the reductions creates a sense of urgency that amplifies the impact of the publicity.

Catalogue Sales

The expense of printing catalogues with pricing creates an obvious cost of price change. The only catalogue users I have talked to so far were wholesalers. These sold seasonal items, the catalogues contained prices, were expensive to print, and because of high printing costs the wholesalers found it nearly impossible to change prices mid-season. An additional consideration was that the retailers to whom they sold did not like mid-season price changes either, for reasons that will be explained presently.

Supermarkets and Department Stores

In supermarkets and department stores, both the mechanical and decision making costs of price change are onerous, but neither has much impact on the frequency or magnitude of price change, because other considerations dominate and because price competition is so central to success in these businesses. The role of menu costs can be understood only in the context of the stores' merchandising methods. It is important to realize that these stores have a regular price for any item that is not likely to lose its appeal quickly because of changes in fashion, season, or technology. Examples of fashion goods are toys and women's clothing. Examples of seasonal items are sports equipment and exterior garments. Examples of goods subject to technological change are computers and high fidelity systems. The regular price is a mark-up over the cost of the item to the store. In the United States, it is illegal for manufacturers to dictate retail prices, so that retailers are fairly free to set them. The mark-ups vary widely from item to item and can even be negative. The mark-ups are smallest for the most popular items bought frequently by many customers, because it is assumed that consumers remember the prices of such products and use them to compare the pricing of competing stores. Mark-ups tend to be larger on expensive items bought by wealthier consumers, because it is assumed that these buyers are insensitive to price. In setting prices, retailers coordinate the prices of similar items, so that prices increase with quality. They do this so as to lure consumers into following the progression of increasing quality until they end up buying high quality items. Stores want consumers to buy these, because both absolute and percentage margins tend to increase with quality and price.

The variation in mark-ups across goods contributes to the need for stores to have a large amount of traffic. Abundant traffic brings high revenue net of the cost of the goods sold, and this revenue is

needed to cover large fixed costs; almost all the expenses of a store, including labor, are fixed except the cost of the products sold. High net revenue comes from high volume and having consumers buy high margin items. It is hoped that if consumers visit a store, they will buy, along with low margin common items, high margin incidentals.

Store managers are very reluctant to increase the regular prices of any items bought frequently, especially if they are purchased by many consumers. The managers worry that regular customers will notice the price increase, be stimulated to explore competing stores, and end up staying with one of them. For this reason, stores resist price increases by suppliers, if they have enough market power to do so. Store margins, after within store costs are subtracted, are so small that stores cannot afford to absorb many cost increases, except temporarily. The stores' suppliers tend to avoid responding to cost decreases by reducing prices, because it would be hard to get prices back up if costs later increased. These considerations far outweigh the costs of price change itself in explaining retail price stickiness. None of these arguments regarding price stickiness apply to expensive items, such as appliances, automobiles, or furniture, for these items are purchased so infrequently that consumers are not likely to remember the price at the time of the previous purchase or to find that price relevant.

There are important exceptions to these generalizations about price stickiness. The prices of perishable foods fluctuate widely and frequently in response to cost changes. These fluctuations are possible in part because consumers are accustomed to the price fluctuations and in part because there is little the stores can do to resist increases in costs. Wholesale markets for perishable foods tend to be very competitive, and price increases are likely to be caused by product shortages. If a major retailer resists a price rise in such a market by refusing to pay the higher price, it may depress market prices, but it will probably be short of product because individual sellers are likely to obtain better prices from other retailers. The commodities with more rigid prices typically are not subject to temporary shortages of supply or are sold by just a few manufacturers. When there are few sellers, the ones selling to a buyer resisting a price increase have little recourse but to suffer a drop in sales to the resisting buyer. There is little hope of finding other buyers, so that the seller and buyer are forced into a difficult bargaining situation. Sometimes perishable foods are sold by large sellers to large buyers, examples being farmed

fish and bananas. In these cases, the buyer and seller do sometimes work out arrangements that stabilize prices and keep them temporarily independent of market price fluctuations.

Other exceptions to price stickiness are fashion goods, seasonal products, and commodities subject to rapid technological obsolescence. In these cases, stores may cut prices in order to get rid of slow selling items and excess inventory.

Store pricing is made confusing by the use of promotional discounts. In many stores, these reductions occur frequently and can be dramatic. The reductions usually apply to only a few items. Promotional discounts can be initiated by stores or by their suppliers. If the store instigates the promotion, it is likely to discount items in high demand and hence of great interest to consumers. Examples would be turkeys at Thanksgiving, popular toys during the Christmas shopping season, fish during Lent, and Coke, hamburg, or steak on Memorial Day weekend. The purpose of such promotions is to create traffic by drawing consumers into the store, where it is hoped they will buy high margin items as well as the discounted ones, which may be sold at a loss. Suppliers or manufacturers use promotional discounts to create interest in and trial of their products. In such cases, the manufacturer offers the store a temporary reduction in cost. The two types of discounting may be combined in one promotion. In both cases, the discounts are temporary, and the price almost always returns to the regular level after the promotion ends.

Some important retailers follow a strategy of everyday low pricing, known as EDLP, which offers low regular prices and relatively little temporary discounting. The appeal of promotional discounts is so great, however, that few stores can refuse to have them altogether.

Large stores typically sell thousands of items and the complexity of regular and promotional pricing is so great that choosing prices is a major and costly management function, especially because it involves long and tense negotiations with suppliers. The mechanics of price change can also be expensive, especially when the price changes have to do with promotional sales. Computer control, bar codes, scanners, and shelf labels help reduce these costs, but every change can lead to mistakes that take time to fix. Although stores managers complained about these costs, they asserted that they are a necessary part of doing business. The costs of price change seem to do little to inhibit more than minor

price changes. The price rigidity that exists in supermarket and department store retailing is important, but is explained not by menu costs but by fear of the impact on consumer loyalty of increases in regular prices.

Specialty Stores Selling Seasonal Goods

Stores of this type typically sell an almost entirely new set of items each season, as their suppliers change styles and models. Examples of such stores are shops selling sporting goods, such as ski equipment and bicycles. All retail prices are decided on at the beginning of the season. These decisions are difficult and require reflection for the same reasons as does pricing in supermarkets and department stores. Because of the decision costs, store managers are very reluctant to move any price up or down in the middle of the season, especially since a change in one price may require a rethinking and adjustment of many others. Because retailers react so negatively to mid-season price changes, manufacturers try to avoid them. Both manufacturers' and retailers' prices may, however, decline at the end of the season on distressed goods. Specialty stores are the only example of businesses I found that change prices infrequently because of the decision costs associated with the changes.

Conclusions Regarding Menu Costs

As far as I know, the costs of price change itself have an important impact on pricing only in the cases of restaurants with fancy menus that are expensive to reproduce, companies that use expensive catalogues to announce and list their products and prices, and stores selling seasonal goods. Price rigidity is nevertheless widespread in retailing, though far from universal, but for reasons that have little to do with the costs of changing prices themselves.

It may seem discouraging that menu cost theory applies only to such specific cases, but one should not react in this way. The world is complicated and it is probably too much to expect to have an easy theory that applies widely. Price rigidity itself is far from universal, and the approaches taken to pricing depend very much on the nature of the products sold and the competitive environment. If I have time, I will sketch two pricing methods that are very common and have nearly opposite effects on price flexibility. These are value pricing and formula pricing tied to market indices. There are many other pricing systems. I mention in passing that I do not remember any firm that followed the Calvo (1983)

system of reviewing and resetting the prices of existing products periodically or at random moments, though my memory probably fails me here. Of course, firms that set the prices of their own products, do change those prices from time to time, and hence would behave in a way consistent with the Calvo model.

Value Pricing

Value pricing is used for highly differentiated low to medium priced products sold to businesses. Examples include consulting services, some computer software, special glues, lubricants, special chemicals, fasteners, and all sorts of mechanical and electronic devices and equipment. Value pricing is common in the pricing of industrial products and, I suspect, applies to a huge volume of business. The purposes of value pricing are to maintain good margins for the seller, to make these acceptable to buyers, and to avoid price negotiations.

In using the value pricing method, sellers proceed roughly as follows. They first carefully estimate how much using their product rather than that of the best competitor would reduce the buyer's costs of production, where this calculation is made under the assumption that the seller's product is sold at the same price as the competitor's. Sellers then estimate their own cost of production, where the cost includes an attribution of fixed costs to the product. The sum of savings to the competitor and the difference between the competitor's price and the seller's own costs of production may be thought of as a surplus. The seller prices the product so as to split this surplus with the buyer, say 50/50 or according to some other reasonable ratio. The seller then explains to buyers how the price is arrived at, so that it will be thought of as fair and advantageous for the buyer. All buyers pay the same price, except perhaps for volume discounts. Sellers who find that some classes of buyers have greater savings than others, sometimes artificially differentiate the commodity in some way, offer a different product to each class, and charge more for the products sold to buyers with greater savings.

Sellers go to great lengths to reinforce the credibility of the value pricing story. Their salespeople explain the savings, demonstrate how the product can best be used, and may even document their own production costs. Value prices tend not to move either both upward and downward in response to changes in demand, because such a price change would call into question the value pricing story. Prices

respond readily, however, to changes in competition and production costs, because these reactions are consistent with value pricing principles.

Formula Pricing

Formula pricing is used for undifferentiated products, especially when there are few enough traders on both sides as to make price negotiations difficult. Examples include crude oil, gasoline, commodity petrochemicals, natural gas, cattle, hogs, pork, poultry meat, eggs, and sometimes coal. Huge volumes of trade are made using formula pricing.

In formula pricing, the buyer and seller agree that prices will be tied in some way to an index. The index could be a price on an exchange, such as the New York Mercantile Exchange crude oil price for the prompt month. The price could also be an average of reported transactions prices, where the average is calculated by a consulting company or by a government agency. Averages reported by consulting companies are common in the markets for animal protein, petrochemicals, natural gas, and crude oil and its refined products. Averages reported by government agencies are common in markets for animal protein. The averages are of prices for negotiated settlements, which are transactions in which the two sides agree on a definite price rather than a formula. The averages do not include transactions where the price was based on a formula, for counting such trades would lead to circularity in the definition of the average. The averages can be reported daily or weekly and in some markets, as for certain petrochemicals, they are reported only quarterly. Some formulas tie prices to indices of industry costs of production. For instance, a federal government index of coal mining costs appears in some coal contracts. A formula can be part of a long-term contract that says, for instance, that pork loins are to be delivered at such and such a place at such and such dates at some index plus or minus, say, two cents per pound. Formulas can also apply to single transactions, especially if reference is made to futures market prices, for these change so rapidly that it is difficult to say exactly what the current market price is while negotiating a deal.

Formula pricing serves several purposes. One function of long-term formula pricing is the reduction of negotiation costs. Reference to an index or a price on an organized exchange makes it easier to agree on a price for a single transaction. If transactions are governed by a long-term contract

with formula pricing, there is no need for further negotiations after the initial agreement is made. The lowering of negotiation costs explains, I believe, why formula pricing seems especially common when there are few buyers and sellers. When a great many buyers and sellers make short-term transactions, the tendency is to avoid formula pricing, because usually one side or the other believes it can do better than an index by looking hard for buyers or sellers. Formula pricing is much preferred to fixed prices in long-term contracts, when market price fluctuations can be large. (Long-term contracts are desired typically when one or both sides of the transaction must make expensive investments in the supply relationship.) The experience with fixed price contracts in markets with volatile prices has been that if the price moves against one side of the contract, that side finds itself at a competitive disadvantage and may refuse to honor the contract. The use of formulas, of course, saves the cost involved in renegotiating contracts. Another reason for using formulas is that they make pricing decisions easy to justify; pricing is often a middle or lower level management function, and such price setters must defend their decisions to upper management.

One of the effects of formula pricing is that it tends to replace negotiated settlements. The resulting shortage of negotiated settlements makes the creation of indices difficult in some markets, and in such markets the prices agreed on in a few transactions determine the prices used in the rest of the market. This phenomenon creates a temptation to misreport negotiated settlements or to manipulate them so as to drive indices up or down, and there have been scandals involving accusations of such cheating.

The indices or prices used in formulas tend to be quite volatile, so that transactions prices are anything but stable. The underlying volatility is one of the factors that make formulas useful.

Overall Conclusions

I wish I had time to describe more pricing systems. If I did, I believe a few patterns would become clear. One is that price rigidity is far from being the rule; the prices for a large volume of trade are extremely flexible. Another pattern is that product differentiation and frequent purchase seem to be necessary for price rigidity. Product differentiation tends to create a special relationship between buyer and seller. Of course, most buyers and sellers have some relationship; they need to know and trust each

other just to be able to do business. But one buyer can know and trust many possible sellers and vice versa. Product differentiation creates a close tie that gives the buyer or perhaps the seller few alternatives. At the same time, there is competition for buyers or even for sellers, and this competition implies that the special relationship has to be managed, and price is a key variable to control. If there were only one possible seller or buyer, there would probably be no need for care in treating the buyer-seller relationship. What has been said so far is valid even if only one purchase is made. The repetition of purchase creates a need for price stability or, at least, a need to justify price change. The form and expression of these needs depend on the nature of the pricing system. In many markets, sellers are weaker than buyers and, at least during the current period of low inflation, their strength blocks price increases or even forces regular price reductions. If purchases are not repeated, then there is no need for price stability. For instance, in markets for expensive, specialized machine tools that buyers purchase only once or occasionally, prices are negotiated on a case by case basis. The repetition of purchase and the need to manage a relationship are reminiscent of the explanations of downward rigidity in wages and salaries (Bewley, 1999) and call to mind Okun's (1981, p. 89)¹ "invisible handshake." The costs associated with price adjustment itself are not central to the explanation of most of the price rigidity that exists, though they do play a role in particular cases.

References

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¹ I owe this reference to William Brainard.